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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,866	09/22/2003	Toru Takayama	0756-7201	4319

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EXAMINER	
LE, THAO P	

ART UNIT	PAPER NUMBER
2818	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,866	TAKAYAMA ET AL.	
	Examiner	Art Unit	
	Thao P. Le	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/22/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/02/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the amendment and remarks made on 05/12/06.

Claims 1-9, 16-17 have been amended.

Claim 23 has been added.

Claims 1-14, 16-23 are pending.

The remarks are fully considered and found persuasive. Therefore, the previous rejection would be withdrawn. However, Claims 1-14, 16-23 are still rejected based on new grounds of rejection.

Information Disclosure Statement

Information Disclosure Statement (IDS) filed on **06/02/06** and made of record. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-14, 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dairiki, U.S. Patent No. 6,599,818, in view of Joo et al., U.S. Publication No. 2002/0056839.

Regarding claims 1, 3, 5, 6, 7, Dairiki discloses a method for manufacturing a semiconductor device (See Figs. 4, 10A-10C, 11A-11C and Cols. 1-28) comprising: forming a semiconductor layer 202 over a glass substrate 201, forming an island-like insulating layer 203 over the semiconductor layer, forming an island-like light-absorbing layer 205/206 over the semiconductor layer 202 with the insulating layer 203/204 interposed therebetween, the island-like light-absorbing layer being capable of absorbing a pulsed light, performing a heat treatment for the semiconductor layer and the insulating layer by selectively heating the light-absorbing layer through an irradiation of the pulsed light. Dairiki fails to disclose the step of pattering the light-absorbing layer after performing the heat treatment.

Joo discloses the method for manufacturing a semiconductor device similar to Dairiki's method and further discloses the step of pattering the light-absorbing layer (Fig. 4G; paragraph 0042) after performing the heat treatment (by light irradiation, paragraph 0041).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to pattern the light-absorbing layer after performing heat treatment because patterning the light absorbing layer after the heat treatment to form metal lines for the voltage application to the transistor.

Still regarding claims 5-7, Dairiki fails to disclose forming the light-absorbing layer that overlaps with a whole surface of the semiconductor layer through an insulating layer and whose end portions are arranged outside of the semiconductor layer. Joo discloses forming the light-absorbing layer 47 that overlaps with a whole surface of the semiconductor layer (Fig. 4F, paragraph 0041). It would have been obvious to one having ordinary skill in the art to form the light-absorbing layer that overlaps with a whole surface of the semiconductor layer through an insulating layer and whose end portions are arranged outside of the semiconductor layer because with such structure, the light-absorbing layer can protect the semiconductor layer and the end portions of the semiconductor layer from light/heat at high temperature.

Regarding claims 2, 4, 8, 16, Dairiki discloses a method for manufacturing a semiconductor device (See Figs. 4, 10A-10C, 11A-11C and Cols. 1-28) comprising: forming a semiconductor layer 202 over a glass substrate 201, forming an island-like insulating layer 203 over the semiconductor layer, forming an island-like light-absorbing layer 205/206 over the semiconductor layer 202 with the insulating layer 203/204 interposed therebetween, the island-like light-absorbing layer being capable of absorbing a pulsed light, performing a heat treatment for the semiconductor layer and

the insulating layer by selectively heating the light-absorbing layer through an irradiation of the pulsed light, the object to be heat is the layer that is arranged inside the light-absorbing layer between the substrate and the light-absorbing layer.

Dairiki fails to disclose the step of pattering the light-absorbing layer after performing the heat treatment.

Joo discloses the method for manufacturing a semiconductor device similar to Dairiki's method and further discloses the step of pattering the light-absorbing layer (Fig. 4G; paragraph 0042) after performing the heat treatment (by light irradiation, paragraph 0041).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to pattern the light-absorbing layer after performing heat treatment because patterning the light absorbing layer after the heat treatment to form metal lines for the voltage application to the transistor.

Still regarding claim 8, Dairiki fails to disclose forming the light-absorbing layer that overlaps with a whole surface of the semiconductor layer through an insulating layer and whose end portions are arranged outside of the semiconductor layer. Joo discloses forming the light-absorbing layer 47 that overlaps with a whole surface of the semiconductor layer (Fig. 4F, paragraph 0041). It would have been obvious to one having ordinary skill in the art to form the light-absorbing layer that overlaps with a whole surface of the semiconductor layer through an insulating layer and whose end portions are arranged outside of the semiconductor layer because with such structure,

the light-absorbing layer can protect the semiconductor layer and the end portions of the semiconductor layer from the light/heat at high temperature.

Still regarding claims 2, 4, 8, 16, Dairiki fails to disclose the length of the light-absorbing of one side is equal or less than a thickness of the glass substrate and wherein a transmission factor of a pulsed light by the island-like light-absorbing layer is 7- percent or less and a transmission factor of the pulsed light by the glass substrate is 70 percent or more. It would have been obvious to one having ordinary skill in the art that the length of the light-absorbing layer has to be equal or less than the glass substrate in order for the light-absorbing layer not to block all light and also to protect the glass substrate from over heated by the light. It would have been obvious to one having ordinary skill in the art at the time the invention was made that the selection of such parameters such as **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art. "Normally, it is to be expected that a change in **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, or in conbination of the parameters would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim

are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller 105 USPQ233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA 1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmscher 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).*

Regarding claims 11-12, 19-20, Dairiki doesn't disclose the pulsed light of the device. It would have been obvious to one having ordinary skill in the art at the time the invention was made that the selection of such parameters such as **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art. "Normally, it is to be expected that a change in **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, or in conbination of the parameters would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller 105 USPQ233, 255 (CCPA 1955). See also In re Waite 77 USPQ 586 (CCPA*

1948); In re Scherl 70 USPQ 204 (CCPA 1946); In re Irmscher 66 USPQ 314 (CCPA 1945); In re Norman 66 USPQ 308 (CCPA 1945); In re Swenson 56 USPQ 372 (CCPA 1942); In re Sola 25 USPQ 433 (CCPA 1935); In re Dreyfus 24 USPQ 52 (CCPA 1934).

Regarding claims 9, 17, Dairiki discloses the light-absorbing layer is formed from a metal nitride (tantalum nitride, layer 611a-614a).

Regarding claims 10, 13, 14, 18, 21-22, Dairiki discloses the light source is from a xenon flash light. Dairiki also discloses the light source may be come from high pressure, halogen, halide lights. It is inherent that the light source disclosed in Dairiki is a coherent light.

Regarding claim 23, Joo discloses the light-absorbing layer is formed to cover the semiconductor layer (Fig. 4F).

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Conclusion

For the above reasons, it is believed that the rejections should be sustained. Feature of an invention not found in the claims can be given no patentable weight in distinguishing the claimed invention over the prior art.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571) 272-1785. If attempts

to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on 571-272-1787. Other inquiries of this application should be called to (571) 272-1562 or the fax number (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thao P. Le
Examiner
AU 2818
July 25, 2006.